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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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TECHNOLOGY CENTER R3700

In re Application of: Garibaldi et al.

Serial No.: 09/292,096

Filed: April 14, 1999

For: METHOD AND APPARATUS FOR MAGNETICALLY
CONTROLLING ENDOSCOPES IN BODY LUMENS AND
CAVITIES

Examiner: J. Leubecker

Group Art Unit: 3739

Commissioner for Patents
Washington, D.C. 20321

Reply Brief

In reply to the Arguments in the Examiner's Answer of October 8, 2002.

The Rejection Under 35 U.S.C. §112

Claim 4 recites:

4. A magnetically navigable endoscope system comprising:
an endoscope having a proximal end and a distal end, the distal end having a magnetic body;
an imaging device which transmits an image, associated with the distal end;
a **display component** for displaying the image;
a magnetic field generating apparatus for generating a magnetic field to move the magnetic body and thus the distal end of the endoscope;
a controller coordinated with **the display** for controlling the magnetic field generating apparatus to apply a magnetic field to change the position of the magnetic body and thus the position of the distal end of the endoscope, the controller controlling the magnetic field generating apparatus to apply a magnetic field and a magnetic gradient to apply a magnetic field of a specific direction to change the orientation of the magnetic body and to apply a magnetic gradient to move the magnetic body and thus the orientation and location of the distal end of the endoscope.

The Examiner argues (Page 4) that it was not clear to the Examiner “the display” in line 7 referred back to “display component” in line 4. This may be true, but the question is whether the reference to “the display” would be understood by a person of ordinary skill in the art as referring to the display component, and applicants submit that it would. Applicants submit that shortened references to lengthy claim elements enhances the comprehensibility of a claim. This is not a case where there is no antecedent for “the display”, or where there are multiple possible antecedents for “the display”.

The Rejection Under 35 U.S.C. §102

The Examiner argues (Page 5) that Ueda et al. changes the orientation of a device. However, as Applicant has repeatedly tried to explain, Ueda uses the gradient or “magnetic force” to accomplish this. In contrast, applicants control the direction of the magnetic field (and **not** its gradient or pulling force) to align a magnetically responsive element in the direction of the applied field. The magnetic field and the magnetic gradient are very different: the direction of the magnetic field and the magnetic gradient vary with respect to each other, in some instances, the magnetic field and the magnetic gradient are parallel, and in other instance the magnetic field and the magnetic gradient are perpendicular.

Applicants’ point is this: Ueda et al. is not using the magnetic *field* to orient a device, it is using the magnetic *gradient*. The magnetic field is different from the magnetic gradient, and they are typically in different directions. Even if Ueda shows a controller for controlling a magnet to control the *gradient* applied to a device, this is not

the same as, and does not suggest a controller for controlling a magnet to control the direction of the *field* applied to the device.

This distinction is in each of applicant's claims. For example claim 2 states "a controller coordinated with the display for controlling the *magnetic field generating apparatus* to apply a *magnetic field* to change the position of the magnetic body and thus the position of the distal end of the endoscope, the controller controlling the *magnetic field* generating apparatus to apply a magnetic field of a specific direction to change the orientation of the magnetic body and thus the orientation of the distal end of the endoscope." While a lay person may not understand the difference between magnetic field and magnetic gradient, they are very different. The clear teaching of Ueda et al, is to use a magnet to "pull" the device into position with the gradient. Applicant's invention uses the magnetic field to align the device.

The Examiner argues (page 6) that "you cannot have a magnetic gradient without a magnetic field", but this does mean that the two are the same. As pointed out above, except at the ends of a magnet, the magnetic field and the magnetic gradient are not parallel, and in some places the field and gradient are perpendicular. It is a vastly different problem to use magnetic gradient to align a device than to use the magnetic field, and a controller for controlling a magnet to apply a gradient does not anticipate a controller to control a magnet to apply a field.

Applicants argued that there is no way to control the magnetic field direction in any of the embodiments of Ueda et al. The Examiner does appear to believe that this is what applicants meant (Page 6), but it is. No where does Ueda et al. teach or suggest applying particular magnetic field direction to control a device. At most, Ueda et al.

teaches controlling the gradient direction. The Examiner references 3A and 3B, and Figs. 7, 8A, and 8B (Pages 6-7) as showing where the magnetic field can be selectively applied. However, while the magnetic field may or may not be changing, what Ueda is controlling is the direction of the gradient –the pulling force – not the magnetic field direction.

Applicants argued that “Ueda et al. does not teach the use of magnetic field alone or in combination with the magnetic gradient to control an endoscope.” The Examiner argues (Page 7) that you can not have a magnetic gradient without a magnetic field. Again, while this may be true, the direction between the two varies and thus controlling the gradient (as Ueda does) is not the same as controlling the magnetic field direction.

Regarding claims 7 and 8, the Examiner argues (page 8) that Fig. 46 shows the letters “UP” on image monitor 348. The Examiner argues that the letters UP are indicia. The letters “UP” may or may not be indicia, but the issue is whether there are “indicia indicating an orientation of the displayed image” and that a controller changes the magnetic field to move the distal end of the endoscope in first and second planes relative to the indicia. There is no teaching whether or how the letters “UP” indicate orientation of the displayed image as required by claims 7 or 8. How do the letters “UP” indicate which direction on the two dimensional screen is up or identify two mutually perpendicular planes. Certainly the letters “UP” are not the same as a “marker aligned with the first direction” and a “marker aligned with the second direction” as required in claim 8.

Regarding claim 9, the Examiner argues (Pages 8-9) states that vertical and horizontal movements of the endoscope correspond to the vertical and horizontal movements of the display image. However, this is incorrect. A controller allows the

endoscope to move in two mutually perpendicular directions, as the endoscope twists and turns in the body, the orientation of these two directions changes with respect to vertical and horizontal. The twist created in the endoscope as it turns means that the movement of the endoscope no longer corresponds to the viewed up and down directions. However, when controlled by aligning with an externally applied field, the computer controller in applicants system can ensure that when a control moves in a particular direction relative to the viewed image, the magnet changes the field to cause the endoscope to move in that direction, regardless of the axial twist in the endoscope.

Conclusion

For these reasons, and for the reasons set forth in Applicants' Brief on Appeal, Applicants submit that the rejection of claims 2-17 should be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bryan K. Wheelock". The signature is stylized with a large, looped initial "B" and a cursive "Wheelock".

Bryan K. Wheelock
Harness, Dickey & Pierce, P.L.C